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DEVELOPEMNT OF POLAND'S MACHINE INDUSTRY

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Poland's industrialization is dependent on increasing the production of producer goods and the variety of machines produced. The following are of most importance: machine tools, coal-extracting and coal-processing machines, metallurgical, chemical, and power equipment, construction machinery, engines, ball bearings, etc. These items are essential to a number of economically important industries and create material and technical resources for modernizing transport, mechanizing agriculture, and strengthening the national defense.

The development of producers cooperatives and state farms, and the increase in the per-hectare yields of individual peasant farms, depends largely on the quantity and assortment of agricultural machines and tractors which the machine industry can supply. The welfare of the working masses is directly affected by the production of such items as radios, baby carriages, bicycles, bathtubs, clocks, and other consumer goods.

In the last 9 years, the machine industry of Poland has increased sixfold, with an especially rapid development occurring from 1950 to 1953. If the 1953 plan is fulfilled, the machine industry will show a production increase of 210 percent in comparison with 1950.

In the last 2 years, Poland organized many new branches of industry and activated scores of large, well-planned machine plants equipped with modern machine tools. The machine industry introduced new techniques and started production of many complex items not previously produced in Poland. From 1950 to 1953, the machine industry started production of more than 300 new types of machines and equipment. Especially important was the development of six types of seagoing vessels, two types of marine steam engines, about 20 types of metal-cutting machine tools (including ten types of heavy machine tools), and 11 types of the more important agricultural machines; the activation of assembly plants for the M-20 "Warszawa" passenger car and "Lublin" trucks; and production of a number of 6,000-ton hydraulic presses, 30-tm [ton?] construction cranes, a number of 3,500-kilowatt electric motors, 40-megavolt-ampere transformers, modern locomotives, and cable pulleys 6 meters in diameter for use in subway construction.

Employment in the machine industry is now 2.5 times that of the prewar period. From 1950 to 1953, employment in this industry increased 60 percent. The industry now has a number of plants, each employing more than 10,000 persons.

The remarkable achievements of the machine and electrical industries can be attributed to the great effort of the working class and the creative abilities of rationalizers, technicians, and engineers. The technicians and engineers get their practical experience in Soviet plants, and in turn train staffs for the newly organized branches of industry in Poland.

The Soviet Union is supplying machines and equipment for Polish factories. Every large metal products plant in Poland has received some kind of Soviet assistance in the form of advice, plans and specifications, machines, or machine parts.

However, in noting the achievements of the past period, we cannot gloss over the defects and mistakes of the machine industry which have hampered the development of other branches of industry.

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A lack of balance has resulted from a lag in certain branches of the machine industry, especially in machine tools, heavy machine construction, turbines and boilers, tools, and bearings. The retarded development of these branches has hampered supply and development of the power industry, chemical industry, metallurgical industry, construction industry, and others.

The following figures on annual production increases from 1950 to 1953 show that the development of the heavy machinery and machine tool industries has not kept pace with other branches of the machine industry:

Indexes of Production Growth

	1950	1951	1952
Heavy machinery	100	125	155
Machine Tools	100	128	149
Totai machine industry	100	129	168

The machine tool industry, which ought to lead the machine industry, does not produce enough vertical milling machines, flat grinding machines, lathes, and other machine tools. It also lags in designing new medels of modern lathes and in putting them into series production. The lag is especially noticeable in precision and gear-cutting machine tocls.

We must reach a turning point quickly in the heavy machine and turbine construction branches, or the development of other branches of the national economy may be gravely hampered. Domestic production must supply the growing demand of the power industry for boilers, steam turbines, large transformers, and other items. At the moment, progress in this field is unsatisfactory. There have been great delays in starting production of low-pressure industrial turbines, high-pressure turbines, turbogenerators, and large steam boilers. The industry is not producing an adequate assortment of chemical equipment, especially centrifuges.

We are proceeding too slowly in expanding production of basic construction machinery. Even with Soviet specifications and plans available, we have not yet put the caterpillar excavator into production. The ministry ought to supervise the production of complex heavy machinery and give over-all systematic assitance. In the past, with proper attention, problems in doubtful sectors of the industry have been worked out satisfactorily. During the period 1951-1953, while we were developing the prototype of the excavator, we started production of complex machinery, such as the steam turbine.

Other branches of industry also show signs of retarded development. To date, the tool industry has not met the demand for threading tools, thread-milling machinery, and thread gauges. Production of broaches and other special tools has not been adequately developed. The tool industry must equate supply and demand, and assure the entire industry an adequate supply of good-quality tools and gauges.

At the moment, ball-bearing production is not meeting the growing demand and, in many instances, constitutes one of the bottlenecks of our industry. A modern machine industry and an adequate supply of consumer goods require a large supply of ball bearings and tapered bearings of various types and sizes. The ministry has taken steps to give the industry systematic assistance and control, and hopes to eliminate the shortages soon.

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In speaking of retarded development and production lags, we must not overlook the electrical industry. There is a lag in the production of large electrical machines, motors, generators, high-tension switches, and electric meters. Although the production of machines and electric motors has improved recently, the production of meters (Factory A-3) has not been properly organized and operations have not been improved, making mass production of meters difficult. The development in recent years of certain precision apparatus can probably make up for the lag in production of some of the more important items.

Obviously, the problems of equalizing the production of power equipment and machine tools are complex and peculiar to each industry, and cannot be solved by the same measures. However, we must exploit the capabilities and resources of the available plants. For example, in the production of steam turbines, except for the making of large forgings, we have all the necessary facilities, including factory space, traveling cranes, machinery, plans and specifications, manpower, and large staffs of engineers and technicians in turbine and turbo-generator plants. Unfortunately, the central administrations, factory managements, and factory workers do not yet understand the immensity of the task and their own responsibilities. The will to fight for the goal, to satisfy the great demand, is lacking.

In this sphere the ministry's supervision is too sporadic, but in the preparation and supervision of specifications and plans, the ministry has had a great deal of experience. In developing the production of the many machines started in 1952 and 1953, progress was checked every day, as were the number of plans used, the number of items put into production, the number of items completed, the stock of materials, and the supply of machine tools. The ministry knew the exact status of each project, could make demands, set production targets, and assist at the proper time. From 1951 to 1953, hundreds of engineers, thousands of workers, and a large number of machine tools in the machine industry were shifted to new fields of production.

Production of large turbines and boilers is important and urgent. To develop production, we must adapt the methods used by the shipbuilding industry and other important branches of industry. The scientific institutes, especially the Instytut Techniki Cieplnej (Institute of Heat Technology), must also take an interest in this problem.

We must organize new factories to produce new types of machine tools, especially gear-cutting tools, thread grinders, coordinated drills, and others. But at the same time, we must increase labor productivity to increase the output of machine tools already in production.

To ensure a rapid increase in labor productivity, we must create proper conditions for the success of the new work norms and wages. To create these conditions, we must have organizational and technical plants. In the machine tool industry, as in the majority of other industries, the problem of production organization is one of the main points of the plan.

Despite great defects in production organization in almost all factories, the majority of the central administrations and factories take only a minor and one-sided interest in this problem. Undoubtedly the present status of production organization is one of the main obstacles to increased productivity. For proper organization of production processes, the factory must have a technical plan, must have a defined specialized responsibility, must base its production plan on its capabilities, and must follow specifications.

The machine tool industry is now organizing production centers on a rather wide scale. However, present machine tool assembly procedures are still very backward. For many years, machine tools have been assembled at the end of the

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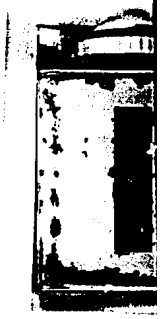
month, and there is still no system and no steady flow of production. Although the Zaklady 1 Maja (First of May Plants) in Pruszkow and the "Zispo" machine tool plant have adopted an assembly chart, they have not followed it. They claim that the machine shops are not supplying parts according to schedule. Actually, at assembly time there is an excess of unnecessary parts and a shortage of necessary parts.



Planned operations would improve the process of assembly. The machine shops could supply a planned assortment of parts when needed. The production cycle would thus be shortened and time-consuming operations reduced. Working with a production chart, the assembly division of one machine factory reduced the production cycle from 35 to 15 days after one month, and to 11 days after the second month. Production increased 100 percent in 2 months, with a significant increase in productivity.

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